Forest Health Protection
Pacific Southwest Region

Date: December 21, 2017
File Code: 3400

To: Ann Carlson, Mendocino National Forest

Subject: Follow-up report for the Four Beetles South Forest Health Improvement Project

At the requests of Tony Saba, Silviculturist (Mendocino NF), the original site visit made to the Four Beetles (aka Beetle Trough) Project along the M2 road in the Tatham and Trough Ridge area of the Grindstone Ranger District, Mendocino National Forest on July 13, 2015. The objective was to assess the stand conditions and evaluate the project for potential funding through the Forest Health Protection (FHP) Western Bark Beetle Initiative (WBBI). A follow-up visit was made May 17, 2016 and updated report submitted (N16-06).

In 2016, the Mendocino NF proposed the Four Beetles (North and South) Forest Health Improvement Project, proposing to treat up to 17,500 acres including land in the Buttermilk Late Successional Reserve (LSR). Although it is a single effort, it has been listed as two separate projects to facilitate implementation. An initial visit was made specifically to the Four Beetles South project area on December 4, 2017 as part of the monthly Forest Leadership Team (FLT) meeting.

Background

The Mendocino NF continues to refine and re-evaluate the purpose and scale of the Four Beetles Forest Health Improvement Project considering the practical realities that forest health continues to decline as times passes and staff are increasingly unavailable due to regional planning efforts and litigation. These considerations led to the current strategy that divided the project into two major steps, Four Beetles North and Four Beetles South.

The initial project area, Four Beetles South, is focused on the south facing slopes, where tree mortality is the greatest, and where such areas were located within the Mendocino NF Land and Resource Management Plan (LRMP) matrix land allocation [and within the scope of Prescription Area 7 (RX 7) – Timber Modified] since the health of these stands is critical to public timber supply and treatment could avoid sensitive areas yet benefit multiple resources values and uses.

The Four Beetles South project area is approximately 1,660 acres located approximately 30 miles west of Orland, Tehama County (legal description: Mount Diablo Base and

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Meridian, Township 23N, Range 8W, Sections 26, 27, 28, 29, 32, 33, 34, and 35). The majority of this acreage occurs in the Grindstone Creek watershed and a small portion in the Thomes Creek watershed following along the M-9 road (Figure 1).

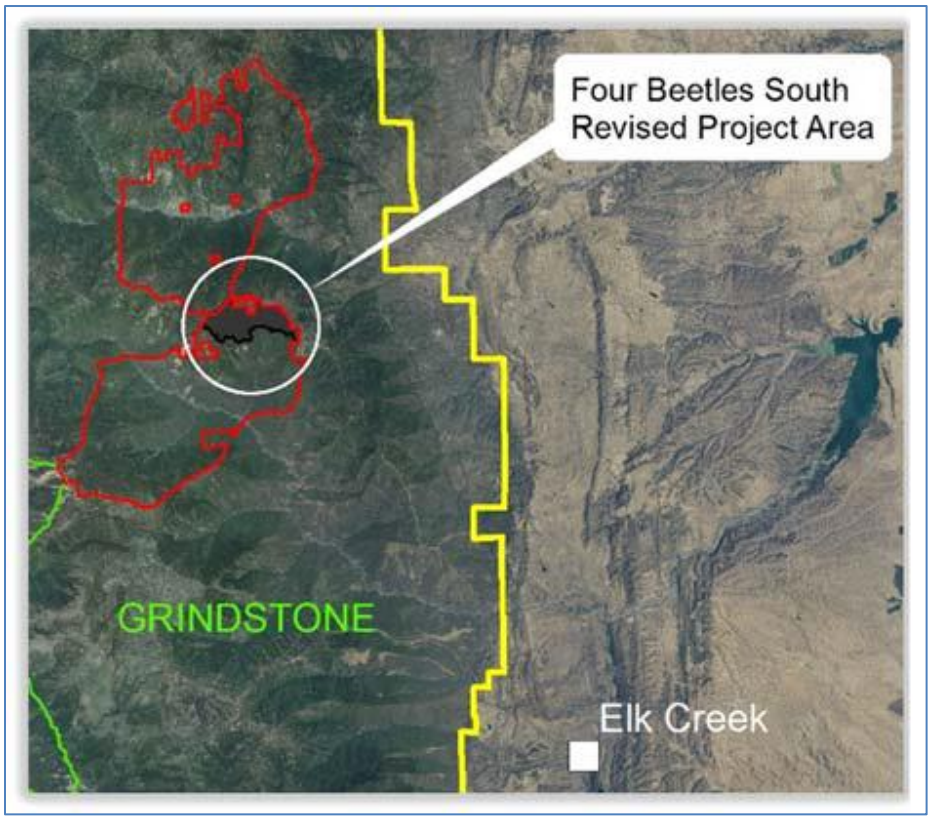


Figure 1. Four Beetles Forest Health Improvement Project area outlined in red with Four Beetles South project area colored in dark red.

Observations

The existing conditions are typical of plantation stands with no active management for several decades, exhibiting high stand densities and homogeneity of shade-intolerant planted overstory with ladder fuels of more shade tolerant species seeding into the understory. 2016 Aerial survey detected over 1,000 acres with elevated mortality in the area (Figure 2). The area has been highly impacted by bark beetles from 2011 to the present. The M-9/Log Springs Sanitation/Salvage project (N12-003) is within the project area. Implementation on the M-9/Log Springs Sanitation/Salvage was completed this year. According to the National Insect and Disease Risk Map (NIDRM), the majority of the project area is projected to lose 6-24% of total basal area from 2013-2027 with the greatest losses occurring in the eastern side of the project area.

The Four Beetles South project area is comprised of south-facing slopes at elevations ranging from 4,000-5,000 feet. It is characterized by low to mid-elevation plant communities. These slopes are dry and low elevation pine communities are predominant, species include ponderosa pine (*Pinus ponderosa*), sugar pine (*P. lambertiana*), Douglas-Fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), incense cedar (*Calocedrus*

decurrens), California black oak (Quercus kelloggii), and California live oak (Q. agrifolia). Age classes range from 35-350 years, the older trees remnants from before logging occurred, are mainly in the riparian reserves.

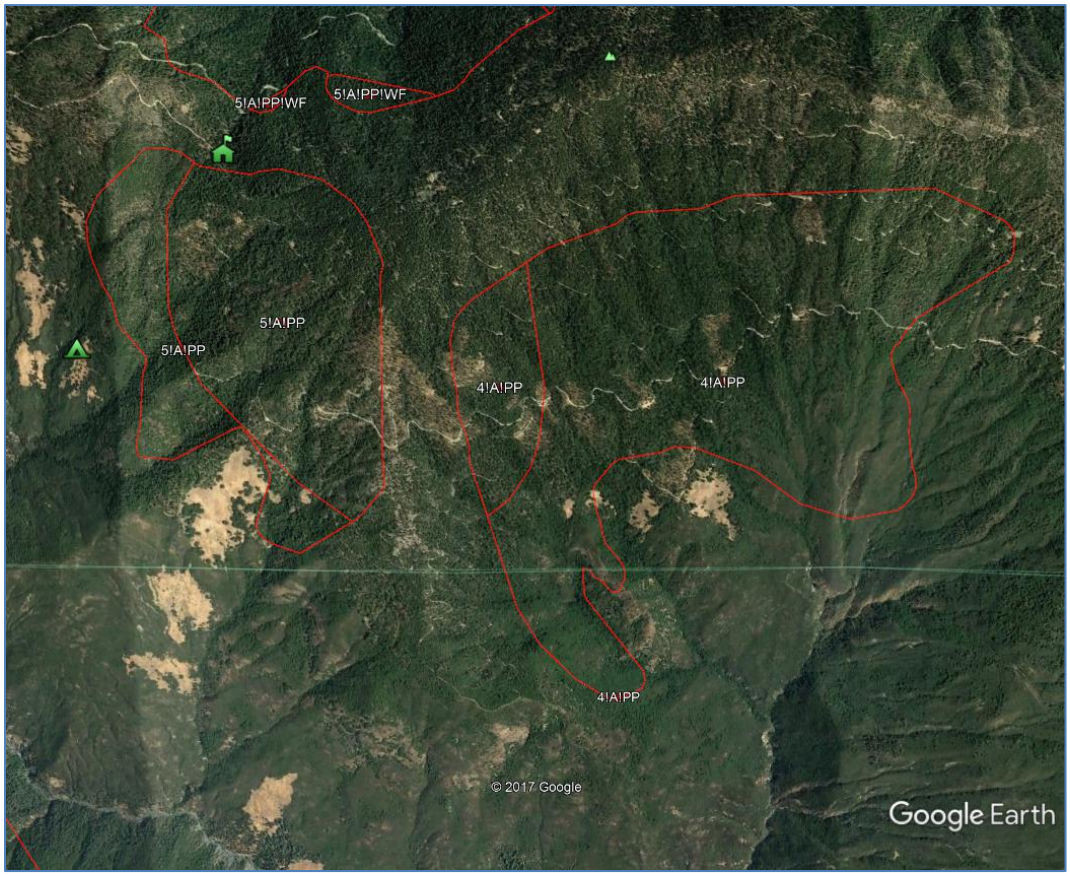


Figure 2. 2016 Aerial Survey (ADS) data showing ponderosa pine mortality of approximately 4 trees per acre across the landscape.

Stand exam data shows that the project area is dense with basal areas 300-400 square feet per acre (Figure 3). High tree densities contribute to poor growing conditions for trees leading to weakened tree defense mechanisms and contributing to overall stand mortality because trees are not able to defend against or recover from insect and disease infestations and epidemics. Stands visited in December showed continued pine mortality due to western pine beetle (*Dendroctonus brevicomis*) in patches of 3-20 trees, mostly on open, dry sites (Figure 4). Fir mortality due to fir engraver beetle (*Scolytus ventralis*) was found in patches of 1-3 trees, also on dry sites. Sugar pine was found attacked by Ips

Figure 3. Stand density is the driving factor in ongoing mortality across the Four Beetles project area. Tony Saba, Mendocino NF Silviculturist, demonstrates the density associated with these stands.

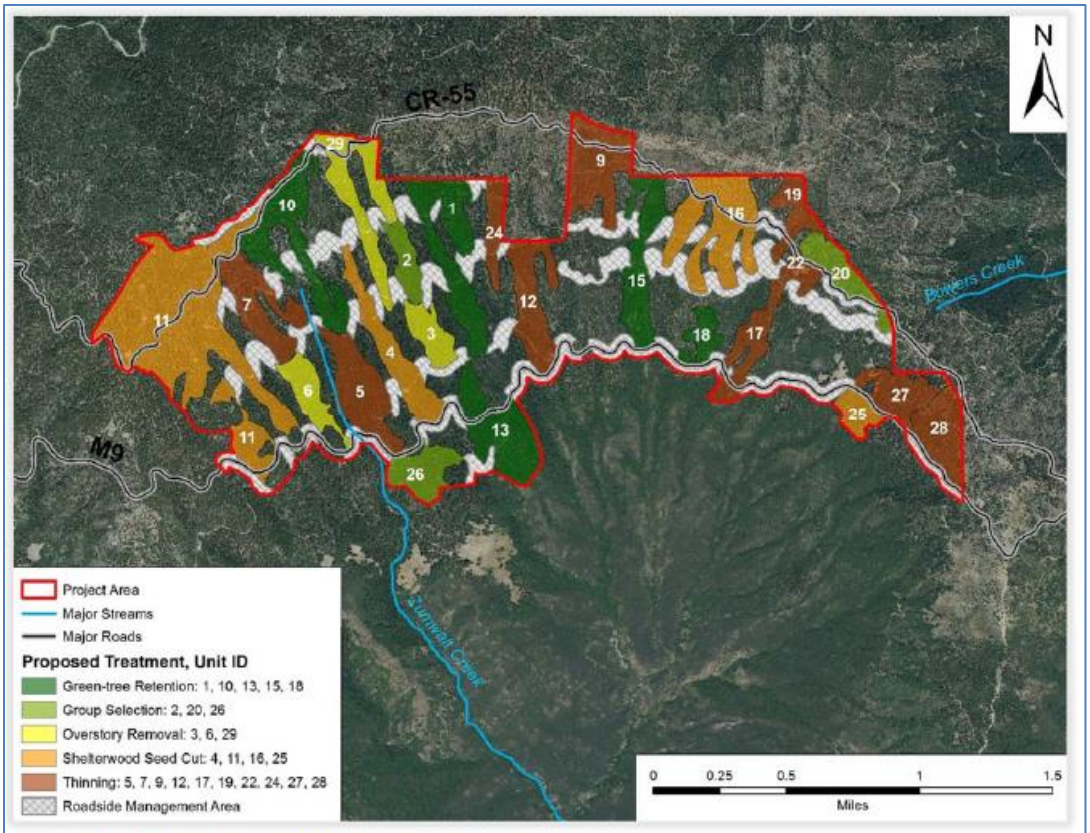
species and California flatheaded borer (*Melanophila californica*) in patches of 5-10 trees where sugar pine was a major component (Figure 5).

Figure 4. Ponderosa pine mortality caused by western pine beetle.

Figure 5. Sugar pine mortality casused by combination of Ips species and California flatheaded borer in very dense sites affected by extended drought.

Discussion

The current proposed action includes thinning all tree species of all ages and diameter size classes using a variety of even-aged and uneven-aged silvicultural methods (Figure 6). Treatments include green tree retention where 20% of the green trees would be retained and 80% removed across diameter classes, group selection where 80% of the green trees would be retained and 20% removed, shelterwood harvest where thinning would reduce basal area to 60 square feet per acre, and thinning to 30% relative density across all species and diameter classes. Treatments would focus on oak release where black oak is being encroached by conifers. In addition, manual thinning of understory vegetation would occur throughout the project area to improve wildlife habitat.



Source: Mendocino National Forest GIS Data (September 25, 2017).

Figure 6. Proposed treatments in four Beetles South project area.

Thinning in this area in such a way as to meet the minimum requirements for western bark beetle funding is supported by the FHP staff through this evaluation. Desired conditions would include reducing density to a level that would remain less than 60% of maximum SDI for a minimum of 20 years to avoid re-entry in that time frame. This would include thinning across all diameters leaving the best of the best of a variety of species including sugar pine, Douglas fir, and incense cedar where available.

Western dwarf mistletoe, although present, does not seem to pose a risk for stands at this time. Thinning may include sanitation to remove brooms when located to further reduce

risk of further spread. Thinning should incorporate prioritizing tree species and diameter classes to increase diversity, which may slow the spread of insects and disease. Heterobasidion root disease, if confirmed at the upper elevations in white fir, may be treated as a natural thinning agent in the white fir and application of a borate compound would be at the discretion of the line officer.

If you have any questions regarding this report and/or need additional information, please contact Cynthia Snyder at 530-226-2437 or Pete Angwin at 530-226-2436.

/s/ Cynthia Snyder

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CC: Tony Saba, Andrew Mishler, Lauren Johnson, Sheri Smith, Chris Fischer, Sherry Hazlehurst, Phil Cannon, Chris Losi, and Pete Angwin